AMENDMENTS TO THE DRAWINGS:

A replacement drawing is submitted for Figure 3.

REMARKS

The application has been amended to place the application in condition for allowance at the time of the next Official Action.

A replacement drawing is submitted for Figure 3 showing a connection through which liquid flows from chamber 304 to chamber 310. As accurately noted in the Official Action, such connection is behind pipe 308 and therefore is added in phantom. The addition of the connection is not believed to present new matter as Figure 9 as well as Figure 6 show connections of two chambers 304a and 304b. Although Figures 6 and 9 relate to different embodiments from that shown in Figure 3, nevertheless one of ordinary skill in the art would understand that the connection from chamber 304 to chamber 310 in the embodiment of Figure 3 is similar.

As part of Figure 3, a label 300 is adding denoting the entire pump.

The above changes are the only changes and are believed not to present new matter.

The specification is amended to include a new title consistent with that suggested in the Official Action. The specification is further amended to include section headings including a "cross-reference to related applications".

Page 7 of the specification on line 5 is amended to clarify that the pressure between 328 and 318 is in line 326

downstream of restrictor 328 and upstream of valve 318. In practice, this will be the same as the pressure of the compressed air supply when the valve 318 is closed. The pressure falls to a lower level when valve 318 is opened so that the rate of flow is to the orifice restriction 328 (from a supply pressure to a lower pressure level) is the same as the flow through the valve 318 from the lower level to that in chamber 310.

Page 8, line 24 of the specification is amended to clarify that the thruster cylinders 410 are of the spring return type as further disclosed on page 9, lines 14-16 of the application.

The above-noted changes to the specification are believed not to introduce new matter.

Claims 1-20 were previously pending in the application. Claims 3, 13, 15, 17 and 20 are canceled and new claim 21 is added. Therefore, claims 1, 2, 4-12, 14, 16, 18, 19 and 21 are presented for consideration.

Applicants note with appreciation the indication that claims 6, 19 and 20 are allowable. In reliance thereon, claim 6 is rewritten in independent form.

Claims 1-5, 7, 8, 10 and 12-18 were rejected under 35 USC 102(b) as being anticipated by EMMONS 1,006,540. That rejection is respectfully traversed.

Claim 1 is amended to include the subject matter of claim 3 and further recites that the shuttle valve is configured

to change state directly in response to the pressure within the portion of the apparatus, the state of the shuttle valve determining whether motive gas enters into, or is vented from, the first container, thereby implementing the pressurization/depressurization cycle.

By way of example, shuttle valve 340 allows motive air to enter the first container 304 when that container is filled and then vents the same container when it has been emptied.

Valve 11 of EMMONS is offered as allowing the motive gas to enter or be vented from the first container. However, the plug valve 11 of EMMONS does not meet the recited shuttle valve. Rather, such plug valve is only used to switch the flow of inflammable gas away from one of the chambers 10/10' that is filled to the other chamber that has (if the apparatus is functioning properly) emptied. Plug valve 11 of EMMONS does not allow motive air to enter the switch container when that container is filled and vent the same container when that container has been emptied. Accordingly, plug valve 11 of EMMONS does not meet the presently recited shuttle valve.

By way of further explanation, the pump of EMMONS allows water to flow into the pump chamber through a valve (at opening 12/13) that is linked mechanically to a float valve unit that also closes a vent valve 20 at a higher level passage 18 in the chamber. An inflammable gas flows into the chamber during the filling phase and is then evacuated to atmosphere when the

valve is open. On closure of the vent valve 20 pressure will rise and, provided that there is sufficient back pressure in the delivery pipe, a thrust cylinder 21 then changes over the flammable gas line and ignition occurs. The water in the chamber is discharged and the combustion products must follow water into the delivery pipe until the chamber pressure falls sufficiently so that the float valve can be reopened. The presence of water in the delivery pipe may hold the pressure in the chamber at a level sufficient to allow the float chamber to be maintained without draining with the float valve being closed so that the pumping chamber will not refill.

In contrast, in the claimed apparatus, motive gas does not exit via the liquid delivery line. The float operated valve 318 opens on high level in the chamber 304 and emits gas so as to lower the pressure in an external pipe. This pressure change initiates the opening of a separate valve that admits the motive gas and the closing of the separate vent valve. The float valve chamber and the main pumping chamber will be at the same pressure. When the liquid level falls in the main chamber it is followed by the level in the flow chamber and the float valve closes. Pressure then rises in the external pipe and the motive gas inlet and vent valves reset. Therefore, the overall operation and arrangement of the claimed apparatus is significantly different than that of EMMONS.

Moreover, there is no suggestion to modify EMMONS to produce an arrangement that would involve a shuttle valve according to amended claim 1.

Independent claim 10 includes a similar feature and the analysis above regarding claim 1 is equally applicable to claim 10.

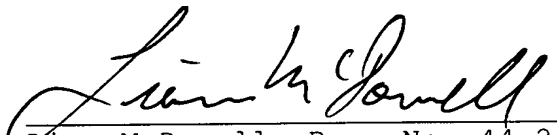
The dependent claims are believed patentable at least for depending from allowable independent claims.

In view of the present amendment and the foregoing Remarks, it is believed that the present application has been placed in condition for allowance. Favorable reconsideration and allowance are respectfully requested.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

YOUNG & THOMPSON



Liam McDowell, Reg. No. 44,231
209 Madison Street, Suite 500
Alexandria, VA 22314
Telephone (703) 521-2297
Telefax (703) 685-0573
(703) 979-4709

LM/fb

APPENDIX:

The Appendix includes the following item(s):

☐ - a terminal disclaimer

☐ - a 37 CFR 1.132 Declaration

☐ - a new or amended Abstract of the Disclosure

☒ - a Replacement Sheet for Figure 3 of the drawings

☐ - a Substitute Specification and a marked-up copy of the originally-filed specification

☐ - a verified English translation of foreign priority document